

OCCURRENCE OF *FORCIPOMYIA CILIATA* (WINNERTZ)
IN NORTH AMERICA WITH NOTES ON ITS BIOLOGY

(Diptera: Ceratopogonidae)

R. J. LAVIGNE

University of Wyoming, Laramie¹

Forcipomyia ciliata (Winnertz) has not previously been reported from the North American continent. It has been reported from Europe (Winnertz 1852, Kieffer 1901, 1925). The larva was first described by Kieffer in 1901. Saunders (1924) reported that *F. ciliata* occurred rather sparingly near Cambridge, England. He described and figured the larval and pupal stages from specimens collected under rotting water weed raked from a mill stream. Further specimens were collected by him hibernating in the rotting stalks of potato plants on a rubbish heap and beneath the bark of a fallen branch. He further noted that this species was usually found upon rotting fungi of the Agaric and Polyporus groups. In a personal communication, Saunders (*in litt.* 1960) informed the author that he had taken larvae of *F. ciliata* in cow dung at Fort Chipewayan on Lake Athabasca, Alberta, on August 9, 1945, but was unable to rear them successfully.

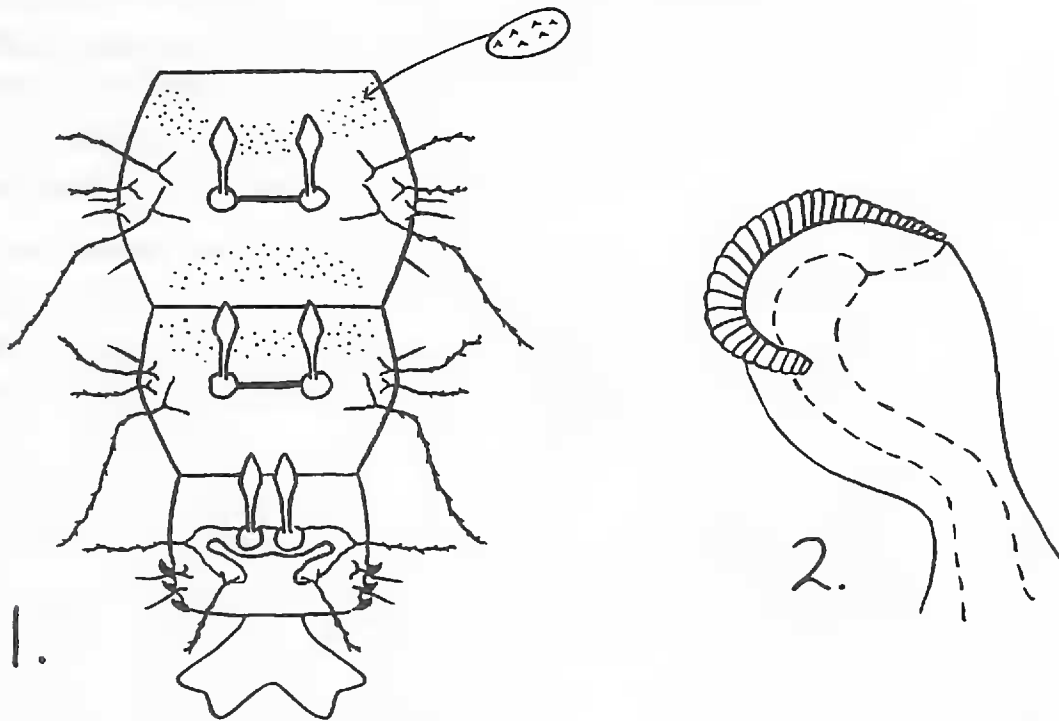
A series of 33 adults of *Forcipomyia ciliata*² were reared from decaying mushrooms collected in a wooded area on the campus of the University of Massachusetts in Amherst on October 2, 1958. The mushrooms were tentatively identified by the author as belonging to the Agaric group. Adults of both *Forcipomyia ciliata* and *F. pilosa* (Coquillett) were reared from decaying specimens of *Armillaria mellea* (Vahl) Quélet³ collected from the same area on September 29. Other adult diptera reared from the same specimens of *Armillaria mellea* were as follows: *Psychoda satchelli* Quate, *Psychoda interdicta* Dyar, and *Scatopse fuscipes* Meigen.

The larvae of *F. ciliata* observed by the author were collected on October 2, 1958. The decaying mushrooms in which they occurred were placed in a large glass jar and covered with a plate of glass. These larvae were noted to be quite gregarious in habit, as reported also for other larval *Forcipomyia*, occurring as a group

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²Specimens of *Forcipomyia* were determined by Dr. Willis Wirth, specimens of *Psychoda* and *Scatopse* were determined by Dr. Alan Stone, both of U.S. Department of Agriculture, Washington, D.C.

³Determined by Dr. Howard Bigalow, University of Massachusetts, Amherst.



EXPLANATION OF FIGURES

Forcipomyia ciliata (Winnertz): Fig. 1—Seventh, eighth, and ninth abdominal segments of the larva. Fig. 2—Pupal respiratory horn.

of approximately 60 individuals. When collected the larvae were in the third and fourth instars, stages in which they ordinarily spend the winter (Saunders, 1924). Influenced by the warm temperature of the laboratory, approximately 80°F., they quickly completed their development. They were observed to feed on the decaying fungi. In the final instar, bars appeared between each pair of spear-shaped setae on all the abdominal segments with the exception of the ninth. (See fig. 1). No bars were observed on the thoracic segments. Just before pupation, the larvae sought dry leaves upon which they attached themselves in a circle with their heads directed towards the center.

Pupation occurred soon after. The empty larval skins remained attached to the fourth and fifth abdominal segments of the pupae, as is the case with other members of this genus (Saunders, 1924). The pupal stage lasted approximately one week.

Adults first appeared on October 13 and continued to emerge until October 20. In captivity, the adults died within two to three days.

Slight differences were noted between the larvae and pupae collected by the author and those figured by Saunders (1924). The prothoracic segment and the eighth abdominal segment of the

larvae lack Saunders' lateral hair *d*. On the prothoracic segment, it has apparently been replaced by a microseta. Six pairs of setae, other than the spear-shaped setae, occur on the meso- and meta-thoracic segments and on the first seven abdominal segments as opposed to the five pairs figured for these segments by Saunders.

In the pupal stage, the microchaetae are not as numerous as stated for *F. ciliata* by Saunders. Saunders (*in litt.*, 1960) notes that in comparing the European and American examples of the same species, the pupal respiratory horn is the feature most likely to vary. This feature was found to be the one that showed the greatest variance. As shown in figure 2, the hexagonal sculpturing extends only about half way down the horn as opposed to Saunders' drawing showing this sculpturing to extend the entire length of the horn. The ellipsoidal areas figured by Saunders on the abdominal segments of the pupa are lacking also. In all other respects both the larvae and pupae agree with the descriptions rendered for them by Saunders.

Specimens of the larvae, pupae and adults are deposited in the U. S. National Museum, in the University of Massachusetts' collection, and in the collection of Dr. L. G. Saunders at the University of Saskatchewan, Saskatoon, Canada.

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